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## Preface

This volume, *Skeletal Development and Repair*, in the Methods in Molecular Biology series is designed as a comprehensive laboratory manual for all levels of basic research scientists working in the broad fields of skeletal development and skeletal repair research. The protocols highlighted here not only encompass the most current and cutting-edge techniques in skeletal development and repair but also showcase those protocols that have been modified and perfected over the course of several decades of skeletal research. These protocols presented by experts in the field include surgical, transplantation, and organ culture methods that permit analyses of skeletal tissues undergoing repair in vivo and permit analyses of cellular interactions ex vivo, histological and molecular techniques developed to study gene and protein expression in whole embryos, skeletal tissues and tissue sections, and in vitro primary cell culture protocols designed to assay gene function in specific cell populations. By design, most of the described methods utilize the laboratory mouse as the platform for surgical manipulation and/or transplantation, as well as, the source of tissues and cells for in vitro culture and analyses. The mouse has become the organism of choice for nearly all areas of skeletal research due to the development of numerous transgenic, cre recombinase expressing, and floxed mice available to the research community. The variety of skeletal research protocols contained in this volume will make it an invaluable tool that we hope will find its way into all labs studying skeletal development and repair using mice as their primary model system.

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